UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE March 4, 1982

SUBJECT Request for Comments, Pine Ford Project, Missouri

FROM Thomas L Budd, Acting Assistant Regional Administrator for Policy and Management

TO Alan Abramson, Director, Water Management Division
Dave Wagoner, Director, Air and Waste Management Division ✓
John Wicklund, Director, Environmental Services Division

BIG RIVER MINING MOD 981126899. 16 Action Required 07CR

The St Louis District Corps of Engineers has requested our response to several questions regarding benefits for water quality releases and controlling heavy metal contamination in the Big River Basin The enclosed letter and data explain their request

An answer to this letter is due March 15 I request your staffs prepare responses to those issues that affect your programs Specifically

WATR - Questions 1a, 1b, 1c, and 2
ARWM - Questions 3a, 3b, and 3c.
ENSV - Any questions deemed appropriate to your program

Please provide your responses to the ENRV Branch by March 10

Little project-related information was provided in the letter If your staff is unfamiliar with the Pine Ford Project, please contact Bob Fenemore for more information

Enclosure

40108358
SUPERFUND RECORDS

EPA ARHM/HAZM

DEPARTMENT OF THE ARMY
ST LOUIS DISTRICT CORPS OF ENGINEERS
210 TUCKER BOULEVARD NORTH
ST LOUIS MISSOURI 63101

REPLY TO ATTENTION OF
LMSED-BF

25 February 1982

MAR 2 1982

Mr John J Franke, Jr
Regional Administrator
US Environmental Protection Agency
324 East 11th Street
Kansas City, MO 64106

Dear Mr Franke

In July 1976, soon after we received initial Phase I planning funds for Pine Ford, an authorized lake project on the Big River, we contacted your agency and requested a revalidation of the benefits attributed to flow augmentation for water quality purposes on the lower Big River and in the reach of the lower Meramec River below the confluence with the Big River

Although our representatives corresponded back and forth through September 1978, we were unable to resolve our differing interpretations of the PL 92-500 provisions, and the policy of EPA at that time dictated that flow augmentation had no benefit whatsoever as a water quality measure

The Corps of Engineers then initiated an abbreviated water quality testing program to define the nature of the problem (if any) and to estimate the effects that could be achieved with flow augmentation Unfortunately, nature was not cooperative in providing low flows that would establish a "worse-case" condition and as you may note from the inclosed data the results were inconclusive

We are now in the final stages of reformulating the Pine Ford project and are examining a variety of plans in addition to the authorized lake plan We expect to provide a draft report to our reviewing authorities in March 1982 and will complete the final Phase I General Design Memorandum in September 1982 From this schedule it is apparent that we are quickly approaching our final opportunity for presenting whatever beneficial water quality effects that might be associated with controlled releases from a reservoir plan

In our own agency, we have observed a number of changes occurring in recent years, changes in problem-solving philosophy, changes in policy and, to be sure, changes in funding and staffing capabilities If these same sort of changes have been experienced by EPA, perhaps it is now possible to consider measures that should have some beneficial effect, however limited, and which could be implemented at low cost and with high reliability as compared to expensive, state-of-the-art measures that may consume much energy and suffer from reliability problems either due to the sophisticated technology or due

EPA

MAR 2 1982

PLNG DIVISION

to the high level of operator competence that might be required In addition to these generalized changes, the Pine Ford situation has been altered by the heavy metals problems which have been recognized only since 1977 and which still have not been completely defined In this regard, Mr Bob Fenemore of your agency has been participating in the coordination meetings and briefings during the course of the heavy metals studies being conducted by the Columbia National Fisheries Research Laboratory

Let me now get down to the purpose of this letter and address some questions for your consideration Your reply will serve to document the current position of the Environmental Protection Agency in our draft report

1 On the basis of the inclosed test data and other data that may be available in your files, would your agency conclude that a pool with regulated releases in the Big River could have a beneficial water quality effect under the following circumstances

a Providing reliable minimum flows of a given dissolved oxygen content such that the natural assimilative or self-cleaning ability of the river would be maintained, with particular effect on non-point contaminants deriving from agricultural operations and individual home treatment systems

b Providing a vehicle by which to enforce competent operation of upstream municipal treatment systems That is, if certain water quality parameters were required in the pool, the local assurances that we could require to be furnished prior to construction could specify certain operating standards Once furnished, the assurances could be enforced as provided by Section 221 of Public Law 91-611

c Providing an emergency "flushing" capability in the event that treatment facilities downstream would malfunction and discharge untreated waste into the stream

2 If you conclude that some benefit could be derived, we would appreciate your opinion as to the dollar value of the benefit or your suggestions as to how such a value could be computed

3 In regard to the heavy-metals problems (preliminary test data were furnished by letter of 20 January 1982 to Messrs Vest and Fenemore), we have assumed that some degree of Corps of Engineers involvement would derive from the fact that Congress originally authorized a lake project and that such a project could not serve the anticipated purposes of recreation and fish and wildlife conservation without first controlling the heavy metals situation For cost-benefit analysis, we have also assumed that, since the environmental/fish and wildlife benefit of controlling the contamination would not be quantifiable, we could assign a benefit equal to the cost of remedial measures In effect then, we would be evaluating the various measures on the basis of effectiveness and least cost

LMSED-BF 25 February 1982
Mr John J Franke, Jr

a Could your agency support this assumption that costs would be equally offset by benefits?

b If we would recommend a lake project and necessary remedial measures for controlling heavy metals, a source of funds for accomplishing the measures could be problematic You might well appreciate that this would be an unprecedented activity for the Corps of Engineers although some parallel comparison might be made with strip mine reclamation activities In any event, your comments would be appreciated concerning potential funding sources with particular reference to the "super fund" and pending legislation related thereto

c It has also come to our attention that the EPA has recently contracted for studies pertaining to heavy metals within the study area If any results, preliminary or otherwise, are available we would be very much interested in receiving them as soon as possible

I realize that I have asked difficult questions and that time will not permit the type of detailed analysis that you would prefer to accomplish and that we would prefer to receive Nevertheless, I would appreciate your earliest consideration of these matters and receipt of your response in sufficent time (say by 15 March 1982) to be included in our draft report

Sincerely,

ROBERT J MACEY
Colonel, CE
District Engineer

1 Incl
As stated

Copy Furnished
Mr Bob Fenemore
US Environmental Protection Agency
324 East 11th Street
Kansas City, MO 64106

MERAMEC STUDY
EUREKA

Date 1979	Time	Air Temp °C	H_2O Temp °C	D O mg/l	pH	Weather	Flow cfs X Daily	BOD mg/l	Alkalinity mg/ $CaCO_3$	COD mg/l	NO_3-N mg/l	NH_3-N mg/l	O-PO4 mg/l	T-PO4 mg/l	T-Hardness mg/l $CaCO_3$	Con-dutance umhos/cm	Turbidity NTU
6/13	1250	28	23	8 4	7 6	PC	1610										
6/14	0700	21	22	8 2	7 6	S	1530	1 2	166	5	19	10	LT 01	07	192	392	3
6/14	1530	30	25	9 7	7 8	S	1530										
6/15	0650	22	24	6 7	7 6	S	1450	2 1	68	5	16	01	LT 01	04	190	383	6
6/27	1700	30	24	10 1	7 5	OC	1050										
6/28	0700	23	23	6 5	7 5	OC	1040	2 0	174	5	25	01	LT 01	03	204	377	3
6/28	1730	19	22	7 5	7 6	R	1040										
6/29	0700	20	21	6 6	7 3	OC	1180	1 5	170	3	29	01	LT 01	04	187	371	6
7/16	1730	31	30	8 8	7 4	S	748										
7/17	0730	21	28	6 2	7 7	S	734	1 3	171	2	01	LT 01	LT 01	04	138	379	4
7/17	1600	30	29	9 6	6 5	S	734										
7/18	0745	17	25	6 4	7 5	S	7 5	1 2	168	LT 1	LT 01	01	LT 01	05	146	385	5
7/18	1530	28	28	10 1	6 5	S	715										
7/19	0730	19	25	6 6	7 6	S	700	1 5	173	4	01	01	02	06	144	388	5
7/19	545	29	27	9 9	6 7	S	700										
7/20	0730	21	24	6 7	7 6	S	690	1 1	189	2	01	LT 01	LT 01	04	152	398	4
8/13	1550	31	25	7 5	6 5	PC	4090										
8/14	0700	15	23	6 9	6 8	S	2710	1 7	82		28	02	01	14	50	205	48
8/14	1700	17	23	7 6	6 8	R	2710										
8/15	0730	17	22	7 9	7 6	R	1830	9	110		33	01	01	09	96	258	25

MERAMEC STUDY
EUREKA

Date 1979	Time	Air Temp °C	H_2O Temp °C	D O mg/l	pH	Weather	Flow cfs X Daily	BOD mg/l	Alkalinity mg/ $CaCO_3$	COD mg/l	NO_3-N mg/l	NH_3-N mg/l	O-PO4 mg/l	T-PO4 mg/l	T-Hardness mg/l $CaCO_3$	Con-dutance umhos/cm	Turb dity NTU
10/2	0900	15	19	8 3	7 4	S	495		176	3	LT 01	LT 01	LT 01	07	158	377	6
10/2	1545	24	21	9 4	7 1	S	495										
10/3	0830	11	18	8 8	7 3	S	476	1 2	174	3	LT 01	LT 01	LT 01	04	154	382	5

MERAMEC STUDY
SULLIVAN

Date 1979	Time	Air Temp °C	H_2O Temp °C	D O mg/l	pH	Weather	Flow cfs X Daily	BOD mg/l	Alkalinity mg/ $CaCO_3$	COD mg/l	NO_3-N mg/l	NH_3-N mg/l	O-PO4 mg/l	T-PO4 mg/l	Ca-Hardness mg/l $CaCO_3$	Conductance umhos/cm	Turbidity NTU
6/13	1440	31	22	3 3		PC	757										
6/14	0545	5	20	7 7	7 7	S	697		145	6	25	01	LT 01	02	160	316	2
6/14	1350	28	22	9 4	7 9	S	697										
6/15	0540	21	21	7 7	7 7	S	651		147	6	25	LT 01	LT 01	02	158	305	1
6/27	60	27	22	8 9	7 2	OC	441										
6/28	053	18	21	7 5	7 4	OC	506	1 1	160	3	37	LT 01	LT 01	02	168	318	1
6/28	600	23	22	8 2	7 4	R	506										
6/29	0535	18	20	6 9	7 0	OC	574		128	12	36	01	02	08	142	314	17
7/16	600	32	28	8 3	7 0	S	332										
7/17	0545	18	28	7 0	7 3	S	320		164	1	17	01	01	05	132	344	11
7/17	1620	29	28	8 0	7 0	S	320										
7/18	0545	12	24	6 8	7 6	S	309	6	164	1	18	01	02	04	130	344	1
7/18	1630	28	25	8 8	7 1	S	309										
7/19	0545	13	22	7 1	7 1	S	302		165	1	17	LT 01	LT 01	03	130	344	1
7/19	1630	28	25	8 8	7 1	S	302										
7/20	0545	14	25	7 5	7 6	S	297		165	LT 1	14	LT 01	LT 01	05	131	342	4
8/13	1650	27	22	9 7	6 4	S	758										
8/14	0530	16	21	8 4	7 3	S	630		135		29	02	LT 01	04	118	291	19
8/14	1700	21	22	8 8	6 6	C	630										
8/15	0530	15	21	8 3	6 9	R	860		137		27	02	LT 01	32	104	291	60

MERAMEC STUDY
SULLIVAN

Date 1979	Time	Air Temp °C	H_2O Temp °C	D O mg/l	pH	Weather	Flow cfs X Daily	BOD mg/l	Alkalinity mg/ $CaCO_3$	COD mg/l	NO_3-N mg/l	NH_3-N mg/l	O-PO4 mg/l	T-PO4 mg/l	T-Hardness mg/l $CaCO_3$	Con-ductance umhos/cn	Turbidity NTU
10/2	0720	1	7	8 3	7 1	S	282		168	2	14	02	LT 01	03	142	348	2
10/2	0>	?	1?	? ?	? 0	S	282										
0/3	0700	9	16	8 4	7 0	S	280	5	170	2	14	02	01	02	142	348	1

MERA CC STUDY
UNION

Date 1979	Time	Air Temp °C	H_2O Temp °C	D O mg/l	pH	Weather	Flow cfs X Daily	BOD mg/l	Alkalinity mg/ $CaCO_3$	COD mg/l	NO_3-N mg/l	NH_3-N mg/l	O-PO4 mg/l	T-PO4 mg/l	T-Hardness mg/l $CaCO_3$	Con-dutance umhos/cn	Turbidity NTU
6/13	1340	37	24	7 2		PC	128										
6/14	0635	7	22	6 3	7 5	S	121		100	8	13	01	LT 01	04	137	273	3
6/14	445	28	24	7 7	7 5	S	121										
6/ 5	0635	21	23	5 9	7 4	S	115		111	11	11	LT 01	LT 01	04	130	275	3
6/27	1640	28	24	8 9	7 4	OC	168										
[redacted]28	0630	20	22	6 8	7 4	OC	160	1 2	133	8	14	01	01	05	142	280	3
6/28	1745	25	22	7 7	7 8	R	160										
6/29	0635	19	21	6 3	7 5	OC	161		111	12	22	04	05	18	121	278	19
7/ 6	1700	31	30	7 9	7 0	S	48										
7/ 7	0645	21	28	6 3	7 4	S	45		126	4	02	01	02	08	114	280	4
7/ 7	1530	30	29	7 7	7 1	S	45										
7/ 8	0645	15	25	6 3	7 7	S	42	1 3	130	6	01	03	03	08	100	308	3
7/ 8	545	29	28	7 8	7 1	S	42										
7/19	0645	15	23	6 4	7 2	S	39		137	8	01	02	01	08	104	308	4
7/19	1345	27	26	7 9	7 4	S	39										
7/20	0645	19	23	7 2	7 6	S	38		136	5	01	02	02	09	112	312	3
[redacted]3	600	27	24	7 0	6 4	S	1440										
8/14	0635	8	22	7 5	6 9	S	541		36		28	03	02	14	3	103	36
8/14	1500	21	24	6 9	6 6	C	541										
8/15	No Sample																

MERAMEC STUDY
UNION

Date 1979	Time	Air Temp °C	H_2O Temp °C	D O mg/l	pH	Weather	Flow cfs X Daily	BOD mg/l	Alkalinity mg/ $CaCO_3$	COD mg/l	NO_3-N mg/l	NH_3-N mg/l	O-PO4 mg/l	T-PO4 mg/l	T-Hardness mg/l $CaCO_3$	Con-dutance umhos/cm	Turbidity NTU
10/2	0815	3	1	7 5	7 2	S	33		142	8	02	06	04	12	10	311	6
10 [illegible]	3	2		[illegible]	7	S	33										
10/3	[illegible]	0	17	7 6	7 0	S	32	5	138	7	02	10	07	14	108	317	5

MERAMEC STUDY
BROWNS FORD

Date 1979	Time	Air Temp °C	H_2O Temp °C	D O mg/l	pH	Weather	Flow cfs X Daily	BOD mg/l	Alkalinity mg/ $CaCO_3$	COD mg/l	NO_3-N mg/l	NH_3-N mg/l	O-PO_4 mg/l	T-PO_4 mg/l	T-Hardness mg/l $CaCO_3$	Con-dutance umhos/cm	Turbidi y NTU
6/13	1500	27	23	8 4		PC	266										
6/14	0605	13	21	7 8	7 7	S	251		215	7	31	LT 01	LT 01	04	254	385	4
6/14	1445	30	24	10 2	7 9	S	251										
6/15	0530	16	22	7 3	7 7	S	237		2 7	7	26	LT 01	LT 01	04	253	381	5
6/27	1620	28	24	8 1	7 4	OC	169										
6/28	0615	9	24	7 7	7 4	OC	174	1 9	225	4	26	01	LT 01	04	268	485	4
6/28	1630	25	25	7 7	7 6	R	174										
6/29	0630	9	23	7 5	7 5	C	197		222	8	29	LT 01	LT 01	05	270	475	4
7/16	1650	32	30	8 1	7 2	S	42										
7/17	0630	21	27	7 3	7 5	S	135		211	3	LT 01	LT 01	LT 01	05	206	484	3
7/17	1645	31	29	8 4	7 0	S	135										
7/18	0630	13	26	7 6	7 7	S	130	1 4	214	6	LT 01	LT 01	LT 01	05	212	510	4
7/ 8	1545	29	28	7 8	7 1	S	130										
7/19	0645	14	25	7 5	7 6	S	127		217	5	LT 01	LT 01	LT 01	07	220	515	4
7/ 9	1645	26	27	8 6	7 5	PC	127										
7/20	0635	14	25	7 3	7 7	S	123		214	3	LT 01	LT 01	LT 01	05	207	482	4
8/3	720	26	24	9 8	6 8	PC	9										
8/14	0540	17	22	7 9	7 3	S	179		205		09	LT 01	LT 01	04	200	461	17
8/14	555	25	24	9 5	7 2	C	179										
8/15	0545	17	21	8 0	8 0	R	328		199		09	03	LT 01	05	190	463	12

MERAMEC STUDY
BROWNS FORD

Da e 1979	Time	Air Temp °C	H_2C Temp °C	D O mg/l	pH	Weather	Flow cfs X Daily	BOD mg/l	Alkalinity mg/ $CaCO_3$	COD mg/l	NO_3-N mg/l	NH_3-N mg/l	O-PO4 mg/l	T-PO4 mg/l	T-Hardness mg/l $CaCO_3$	Con-dutance umhos/cn	Turbidity NTU
10/2	0730	5	7	7 8	7 2	S	92		240	3	LT 01	LT 01	LT 01	05	250	530	6
10/2	33	1		4	7	S	92										
10/3	07 0	5	15	8 3	7 2	S	89	7	236	4	LT 01	05	LT 01	04	240	538	6

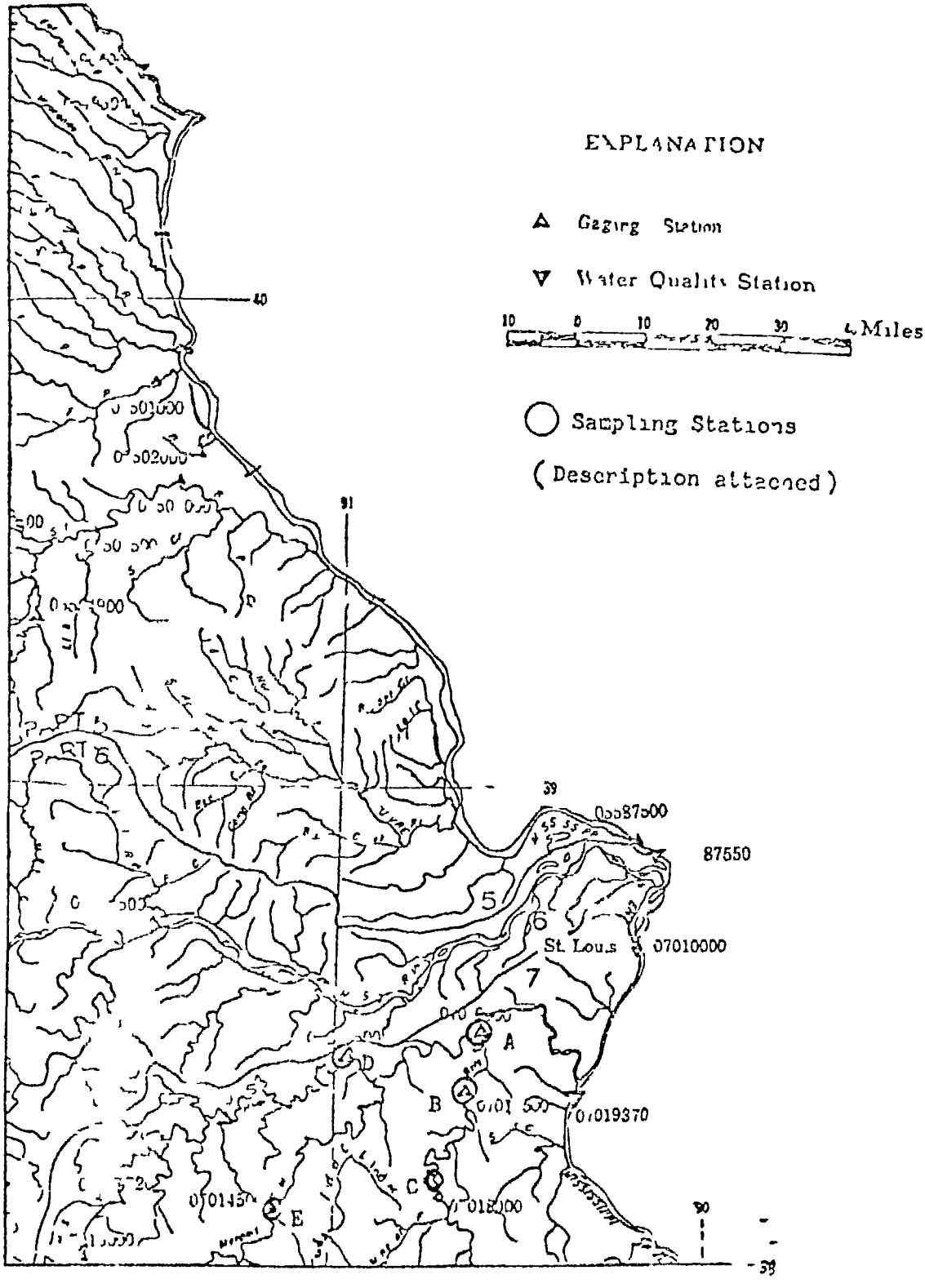
MERAMEC STUDY
BYRNESVILLE

Date 1979	Time	Air Temp °C	H_2O Temp °C	D O mg/l	pH	Weather	Flow cfs X Daily	BOD mg/l	Alkalinity mg/ $CaCO_3$	COD mg/l	NO_3-N mg/l	NH_3-N mg/l	O-PO4 mg/l	T-PO4 mg/l	T-Hardness mg/l $CaCO_3$	Con-dutance umhos/cm	Turbidity NTU
6/13	1700	27	24	9 3		PC	315										
6/14	0615	19	23	8 0	7 6	S	294		209	5	20	01	LT 01	05	252	474	3
6/ 4	1525	31	24	8 7	7 8	S	294										
6/15	0615	16	24	7 9	7 7	S	285		208	8	26	LT 01	LT 01	04	250	477	10
6/27	1545	27	24	8 6	7 1	OC	188										
6/28	0555	19	22	6 6	7 1	OC	190	25	229	4	20	01	LT 01	03	274	474	3
6/28	1545	25	23	7 8	7 0	OC	190										
6/29	0540	16	21	6 9	7 3	C	197		215	7	24	LT 01	LT 01	04	254	477	6
7/16	1600	31	28	8 0	6 9	S	163										
7/ 7	0550	19	25	6 5	7 3	S	155		219	3	11	LT 01	LT 01	04	212	506	3
7/17	1730	24	27	8 4	7 0	C	155										
7/18	0545	11	24	6 4	7 8	S	148	1 0	222	3	10	LT 01	LT 01	03	216	510	3
7/18	1730	25	26	8 7	6 6	S	148										
7/ 9	0545	11	23	6 6	7 6	S	142		224	2	09	LT 01	02	04	224	517	3
7/19	1730	24	25	8 8	7	PC	142										
7/20	0545	12	23	6 7	7 7	S	136		226	1	07	LT 01	LT 01	04	230	506	3
8/ 3	1365	27	24	7 6	6 5	S	461										
8/14	0620	18	23	7 8	7 3	S	371		143		20	02	LT 01	07	120	323	15
8/ 4	1625	21	24	8 3	7 0	C	377										
8/15	06 0	18	22	6 9	8 1	R	535		178		20	04	LT 01	05	162	398	12

MERAMEC STUDY
BYRNESVILLE

Date 1979	Time	Air Temp °C	H_2O Temp °C	D O mg/l	pH	Weather	Flow c's X Daily	BOD mg/l	Alkalinity mg/ $CaCO_3$	COD mg/l	NO_3-N mg/l	NH_3-N mg/l	O-PO4 mg/l	T-PO4 mg/l	T-Hardness mg/l $CaCO_3$	Con-dutance umhos/cn	Turbidity NTU
10/2	0810	15	18	8 5	7 2	S	108		228	4	LT 01	LT 01	LT 01	08	236	514	11
10/2	1[illegible]15	[illegible]			[illegible]	S	107										
10/3	0750	6	18	8 8	[illegible]	S	07	1 [illegible]	228	6	LT 01	05	LT 01	06	248	517	10

APPENDIX I


EXPLANATION
Gaging Station
Water Quality Station
10 0 10 20 30 40 Miles
Sampling Stations
(Description attached)
40
91
39
38
87550
St. Louis
07010000
A
B
C
E
5
6
7

APPENDIX I

Description of Sampling Stations

Station Designation	USGS or Corps Station No	Stream Name & Description
A	U S G S 07019000	Meramec at Eureka
B	U S G S 07018500	Big River at Byrnesville
C	Corps Big River Sampling Sta No 4	Big River
D	U S G S 07016500	Bourbeuse
E	U S G S 07014500	Meramec